

Claims

1. Method for shutting down inter-domain routes, wherein
  - the failure of a segment connecting two autonomous systems
  - 5 (AS4, AS5) is established by a router (R43) of a first autonomous system (AS4),
  - a message, which contains information relating to the failure of the segment, is sent from the router (R43) to a second autonomous system (AS3) and
  - 10 - the inter-domain routes containing the segment are shutdown by a router (R32) of the second autonomous system (AS3).
2. Method according to claim 1, characterised in that
  - the message is sent directly from the router (R43) or via one
  - 15 or more routers (R42) to the second autonomous system.
3. Method according to claim 1 or claim 2, characterised in that
  - the router (R32) of the second autonomous system (AS3), for
  - 20 its part, sends a message, which contains information relating to the failure of the segment, to at least one further adjacent autonomous system (AS2).
4. Method according to claim 3, characterised in that
  - 25 - the message is sent directly from the router (R32) of the second autonomous system (AS3) or via one or more further routers (R31) of the same autonomous system (AS3) to the further adjacent autonomous system (AS2).
- 30 5. Method according to any one of the preceding claims, characterised in that
  - a message, which contains information relating to the failure of the segment, is transmitted to all autonomous systems which

comprise at least one route containing the segment for routing data packets.

6. Method according to any one of the preceding claims,  
5 characterised in that

- when the segment is returned to service, a message is sent to an autonomous system (AS3) which has shutdown inter-domain routes containing the segment, the message containing information on the fact that the segment has been returned to  
10 service.

7. Method according to any one of the preceding claims,  
characterised in that

- when the segment is returned to service a message is sent to  
15 all autonomous systems which shutdown inter-domain routes containing the segment, the message containing information on the fact that the segment has been returned to service.

8. Method according to claim 6 or 7, characterised in that

20 - at least one autonomous system (AS3), which has been informed about the return to service of the segment, returns the inter-domain routes containing the segment to service.

9. Method according to any one of the preceding claims,  
25 characterised in that

- the message containing the information about the failure of the segment is transmitted by means of an UPDATE message of the Border Gateway Protocol.

30 10. Method according to any one of claims 6 to 9,  
characterised in that

- the message containing the information about the return to service of the segment is transmitted by means of an UPDATE message of the Border Gateway Protocol.

- 5 11. Method according to claim 9 or 10, characterised in that
- the segment is transmitted in the field of the UPDATE message, which is provided *per se* for the transmission of routes, it being specified by means of a PATH ATTRIBUTES parameter that a segment is involved.

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12. Method according to any one of the preceding claims, characterised in that
- the first and second autonomous systems are IP (Internet Protocol) networks.

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